Project Deliverable C:
Design Criteria and Target Specifications
GNG 1103
Prof Knox

Alex Milgram
Kalan Kok
Eric Wang
Charlie Huang
Peter Zhou

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1. Design Criteria

Needs	Primary or Secondary	Criteria
Efficiency	Primary	When talking about assembly lines, the first thing to think of is efficiency. It is why the “assembly line’ is created as a concept. From the presentation, we know that the filler is at the very bottom of a V-shaped conveyor belt and is the slowest part of the entire system. To increase efficiency the best way is to increase the speed of the filler, if possible. The other way could be to redesign the assembly line and divide it into many parts and reassemble it.
Safety	Primary	Safety is always the first priority when working with machines. It is necessary for the employer to train all the workers working at the factory to know how to control the machines. A mistake could easily cause someone to get severely injured or killed. Not to mention the cost of pension and extra work for others. Each individual machine and the entire system should have an emergency stop button, in case there is any error or hazard, the workers could stop the system for their own safety
Cost	Primary	Cost is always an important

		factor for a business. This includes the cost of the system itself and the cost of maintenance
Stabilization	Primary	Stability is an important factor for a machine. This includes making plans ahead, and quality checks. Will it break? Will it stop working? What if workers make a mistake? What if there is a storm or earthquake? Etc. In all kinds of situations, a good quality machine should always have a stable performance. The quality of the product should be held to a high and stable standard
Size	Secondary	Size is also a factor for an assembly line. Ideally, the smaller the size the more it fits into the room, increasing the efficiency of the system in another way
Assembling	Secondary	The machine and the entire system should be easy to assemble, because all machine needs maintenance, and easy assembly makes everyone's life easier.
Complicity	Secondary	The machine should not have a very complicated control system. An easy control system makes workers understand it more quickly and is much easier to memorize, reducing the possibility of

		workers making mistakes, causing a loss

2. Technical Benchmarking

Based on the information from the first client meeting, the client demands for a product line which can increase its current system's efficiency to 3 percent and the filler has to be nonstop during the operation ideally.
The client wants us to find a solution to maximize the efficiency of the product line. By the given V-curve theory and understanding the filler station is comparably slower than any other section in the process, decelerating the speed of the conveyors before filling and accelerating its speed after filling can catch up the efficiency and be most productive for the system.
Because Mill Street brewery recycles bottles and reuses them, and creates a variety of products(unwrapped and wrapped), wrapped bottles could damage conveyors via friction and cause maintenance. Several other reasons like bottles falling, stuck...etc causes maintenance up to a day.

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The client does not have a system to decelerate 10% before filling and 10% or more after filling.

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Filler stops operating due to large capacity of units stuck in one section

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The product line breakdown causes a long time for the system to reoperate.

Note:
The width and speed of the product line is not given. The most common error for the product line is provided.

3. Target Specifications

As a preface to this deliverable, it is difficult to give exact precise metrics for design specifications due to the fact that we do not have access yet to the current data about the current system. What we can do is make ideal guesses on what our target specifications could be based on what we know of modern technology, and other similar systems in use today.

Specification	Range	Importance (weight)/5
Cost	15 to 500$	5
Weight	Carriable (5 to 50 pounds)	1
Stored Size	Up to about ½ m^3 in volume (more of a software based project)	2
Response Time	Instantaneous up to 60s	4

4.Reflection on client meeting

Based on the requirement of the client, we will make sure the cost is as low as possible. Also, we will make the system clear enough and easy to use, that means a starter cause the system as well. Based on "Delivery B", we will separate the system into 3 parts. The first and the third part will maintain 100% speed, and the second part, the fill station, will be 90% speed. This can make sure the speed meets the requirement of "ideal v curve".

References

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